

(first worksheet) Genetics Practice Probs Answers

1. $Tt \times tt$

	T	t
t	Tt	tt
t	Tt	tt

1 tall : 1 dwarf

2. $Tt \times Tt$

	T	t
T	TT	Tt
t	Tt	tt

3 tall : 1 dwarf

3. $II \times ii$

	I	I
i	Ii	Ii
i	Ii	Ii

100% inflated

4. $ii \times ii$

	i	i
i	ii	ii
i	ii	ii

100% constricted

5. $Tt \times tt$

	T	t
t	Tt	tt
t	Tt	tt

would have to be tall to get the recessive

6. $Rr \times rr$

	R	r
r	Rr	rr
r	Rr	rr

probability is $\frac{1}{2}$

7. $Ff \times Ff$

	F	f
F	FF	Ff
f	Ff	ff

8. $SsBb \times ssbb$

	S	s
b	Sb	sb
b	Sb	sb

	s	s
b	sb	sb
b	sb	sb

9. Short, black : 9

Short, red : 3

Long, black : 3

Long, red : 1

	SB	sB	Sb	sb
sb	SsBb	ssBb	Ssbb	ssbb
sb	SsBb	ssBb	Ssbb	ssbb
sb	SsBb	ssBb	Ssbb	ssbb
sb	SsBb	ssBb	Ssbb	ssbb

Short, black : 1

Short, red : 1

Long, black : 1

Long, red : 1

10) $BbEe \times Bbee$

	B	b		B	b
E	BE	bE	e	Be	be
e	Be	be	e	Be	be

	BE	bE	Be	be
e	$BbEe$	$BbEe$	$Bbee$	$Bbee$
e	$BbEe$	$BbEe$	$Bbee$	$Bbee$
e	$BbEe$	$BbEe$	$Bbee$	$Bbee$
e	$BbEe$	$BbEe$	$Bbee$	$Bbee$

black (E) : 8 reduced : 1
yellow (e) : 8 1

1) $C^Y C^Y \times C^B C^B$

	C^Y	C^Y
C^B	$C^Y C^B$	$C^Y C^B$
C^B	$C^Y C^B$	$C^Y C^B$

100% tort.

b) $C^Y C^B \times C^Y C^Y$

	C^Y	C^B
C^Y	$C^Y C^Y$	$C^Y C^B$
C^Y	$C^Y C^Y$	$C^Y C^B$

c) $C^Y C^B \times C^B C^B$

	C^Y	C^B
C^B	$C^Y C^B$	$C^B C^B$
C^B	$C^Y C^B$	$C^B C^B$

2) a) codominance

b) $S^T S^O \times S^T S^O$

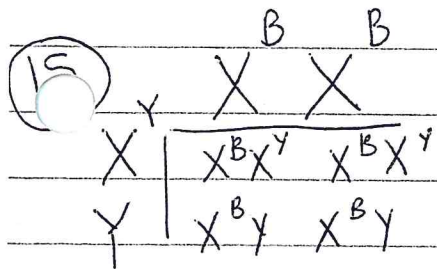
	S^T	S^O
S^T	$S^T S^T$	$S^T S^O$
S^O	$S^O S^T$	$S^O S^O$

two prong : 2 mix : 1 one prong

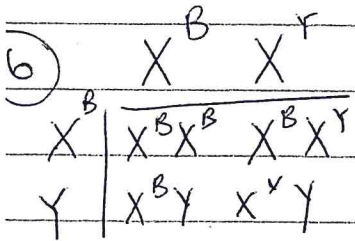
3) $S_P^T S_P^O \times S_P^T S_P^+$

	S_P^T	S_P^O
S_P^T	$S_P^T S_P^T$	$S_P^T S_P^O$
S_P^T	$S_P^T S_P^T$	$S_P^T S_P^O$

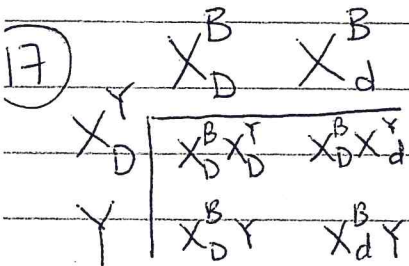
two prong, purp : 1 mix, purp : 1 two, yellow : 1 mix, yellow



B/c they have "Y" chromosome, so they can't have 2 alleles on the same chromosome.

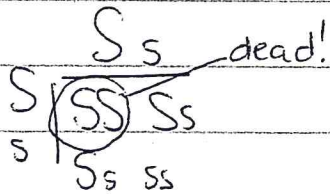


1 black female : 1 calico female : 1 black male : 1 yellow male

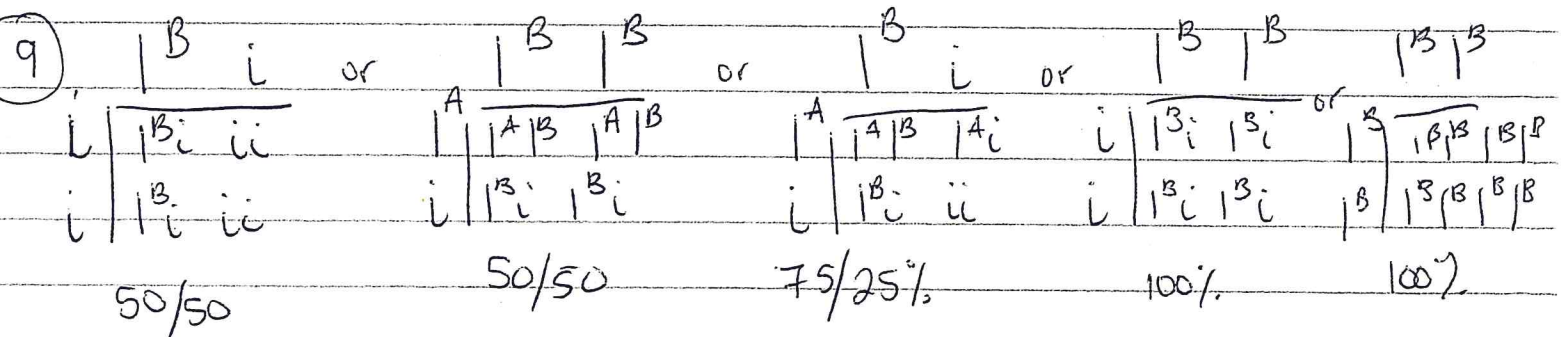


2 "normal" calico female : 1 black normal hearing male : 1 black deaf male

18 $Ss \times Ss$



2 "spinning" : 1 normal.



- 1) I-1, II-2, 3, 7, III-3
 2) dominant
 3) 6
 4) 2

5) II-4 is uncle; III-2 is niece
 I-2 is grandma; III-5 is grandson

21) $I^A i \times I^B i$

$$\begin{array}{c|cc} I^A i & & \\ \hline I^B & I^A I^B & I^B i \\ i & I^A i & ii \end{array}$$

22) $I^A i \times I^B i$

$$\begin{array}{c|cc} I^A i & & \\ \hline I^B & I^A I^B & I^B i \\ i & I^A i & ii \end{array}$$

no! b/c there's a 25% chance!!

23) only type O b/c it doesn't have any antigens (A & B both have antigens)

24) MAN #1

a)	$\begin{array}{c cc} I^A i & & \\ \hline I^B & I^A I^B & I^B i \\ I^B & I^A I^B & I^B i \end{array}$	or	$\begin{array}{c cc} I^A I^A & & \\ \hline I^B & I^A I^B & \end{array}$	or	$\begin{array}{c cc} I^A i & & \\ \hline I^B & I^A I^B & I^B i \\ i & I^A i & ii \end{array}$	could be...
	50/50		0%		25%	

MAN #2
 b) $X^i Y$ - can only pass this to his daughters!

* could be any of them b/c mom must be a carrier, so 50/50 shot she passes it onto her son.